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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2007-0378; Directorate Identifier 2007-SW-04-AD; Amendment 39-15314; AD 2007-26-12]**

**RIN 2120-AA64**

#### **Airworthiness Directives; Robinson Helicopter Company Models R22, R22 Alpha, R22 Beta, R22 Mariner, R44 and R44 II Helicopters**

**AGENCY:** Federal Aviation Administration, DOT.

**ACTION:** Final rule; request for comments.

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**SUMMARY:** This amendment adopts a new airworthiness directive (AD) for the specified Robinson Helicopter Company (Robinson) helicopters. This action requires a one-time visual inspection for skin separation along the leading edge of blade skin aft of the skin-to-spar bond line on the lower surface of each blade and in the tip cap area. This action also requires a "tap test" for detecting a separation or void in both bonded areas. This action also requires repainting any exposed area of the blades. If any separation or void is detected, replacing the blade before further flight is required. Thereafter, before each flight, this AD also requires checking for any exposed (bare metal) along the skin-to-spar bond line on the lower surface of each blade near the tip. If any bare metal is found, a mechanic must inspect the area. This amendment is prompted by 11 reports of blade debond, some occurring in flight causing the pilot to feel excessive vibrations and land, and some found during routine maintenance. The actions specified in this AD are intended to detect blade skin debond and to prevent blade failure and subsequent loss of control of the helicopter.

**DATES:** Effective January 18, 2008.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of January 18, 2008.

Comments for inclusion in the Rules Docket must be received on or before March 3, 2008.

**ADDRESSES:** Use one of the following addresses to submit comments on this AD:

- Government-wide rulemaking Web site: Go to <http://www.regulations.gov> and follow the instructions for sending your comments electronically;
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building, Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE., Washington, DC 20590;

- Hand Delivery: Deliver to the "Mail" address between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays; or
- Fax: (202) 493-2251.

You may get the service information identified in this AD from Robinson Helicopter Company, 2901 Airport Drive, Torrance, CA 90505, telephone (310) 539-0508, fax (310) 539-5198.

### **Examining the Docket**

You may examine the docket that contains the AD, any comments, and other information on the Internet at <http://regulations.gov>, or in person at the Docket Management System (DMS) Docket Operations office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The Docket Operations office (telephone (800) 647-5527) is located in Room W12-140 on the ground floor of the West Building at the street address stated in the ADDRESSES section. Comments will be available in the AD docket shortly after the DMS receives them.

**FOR FURTHER INFORMATION CONTACT:** For information relating to the Robinson R22 helicopter, contact Eric Schrieber, Aviation Safety Engineer, FAA, Los Angeles Aircraft Certification Office, Airframe Branch, 3960 Paramount Blvd., Lakewood, California 90712, telephone (562) 627-5348, fax (562) 627-5210. For information relating to the Robinson R44 helicopter, contact Fred Guerin, Aviation Safety Engineer, FAA, Los Angeles Aircraft Certification Office, Airframe Branch, 3960 Paramount Blvd., Lakewood, California 90712, telephone (562) 627-5232, fax (562) 627-5210.

**SUPPLEMENTARY INFORMATION:** This amendment adopts a new AD for the specified Robinson helicopters. This action also requires a one-time visual inspection for skin separation along the leading edge of the blade skin aft of the skin-to-spar bond line on the lower surface of each blade and in the tip cap area. This action also requires a "tap test" for detecting a separation or void in both bonded areas. This AD also requires repainting any exposed area of the blades. If any separation or void is detected, replacing the blade before further flight is required. Thereafter, this action requires, before each flight, checking for any exposed (bare metal) along the skin-to-spar bond line on the lower surface of each blade near the tip. If any bare metal is found, a mechanic must visually inspect the area, perform a "tap test," and remove both blade tip covers and inspect. This amendment is prompted by 11 reports of blade debond, some occurring in flight, causing the pilot to feel excessive vibrations and land, and some found during routine maintenance. In one of the reported incidents, the debond was caused by corrosion from the lower surface of the aluminum tip cap, which is bonded to the inside of the blade tip. The corrosion bubbles caused lifting of the skin and eventual separation. This condition was found during inspection and not in flight.

We have reviewed the following:

- Robinson R22 and R44 Safety Alert, issued on January 4, 2007, revised on March 16, 2007, and March 22, 2007 (Safety Alert);
- Robinson R22 and R44 Service Letter SL-56 and SL-32, dated March 16, 2007, and Revision A, dated March 29, 2007 (Service Letter);
- Robinson R22 and R44 Service Bulletin SB-96 and SB-61, both dated March 29, 2007 (Service Bulletin);
- Robinson letter titled "Additional Information Regarding Main Rotor Blade Skin Debonding," dated May 25, 2007; and
- The Robinson Model R22 and R44 Rotorcraft Flight Manuals changes to the Normal Procedures Section 4, and Systems Description Section 7, revised April 20, 2007.

The latest Safety Alert states in part, "During each daily preflight, visually check blade finish along lower surface bond line. If any bare metal is exposed at or beyond bond line, have blade refinished per R22 Service Letter SL-56 or Service Letter SL-32 by a qualified mechanic before further flight." The Service Letter, Revision A, dated March 29, 2007, specifies using 10x

magnification to visually inspect the leading edge of any exposed (bare metal) blade skin at skin-to-spar bond line. The Service Letter also specifies tap testing all bare metal skin-to-spar bonded areas. If any tap test indication of separation or any void is detected, the blade is unairworthy. The March 16, 2007, Service Letter to R22/R44 owners/operators, and Service Centers, specifies using a 5x to 10x magnification for the visual inspection and makes certain changes to the painting process. Revision A, dated March 29, 2007, to the Service Letter includes a more accurate drawing of the exposed skin-to-spar joint area. That Service Letter also includes an inspection for corrosion around the internal aluminum tip cap area and specifies painting any bare metal.

Bond failures have occurred on blades where the protective coatings have eroded away leaving the skin aft of the bond line at the skin-to-spar bond line exposed on the lower surface near the tip. Further erosion of the leading edge of the unprotected skin has caused voids and skin separation. Bond failures have also occurred due to corrosion around the tip cap where corrosion residue has disrupted and eventually separated the bond.

To attempt to prevent debonding on new blades, the manufacturer has changed the production process. However, it has not been proven that these changes will prevent a debond. Therefore, at this time, the FAA does not consider these newly manufactured blades to provide terminating action for the requirements of this AD.

This unsafe condition is likely to exist or develop on other helicopters of these same type designs. Therefore, this AD is being issued to detect blade skin debond to prevent blade failure and subsequent loss of control of the helicopter.

This AD requires the following:

- Within 10 hours TIS, unless accomplished previously,
- Using a 10x or higher magnification, visually inspect for skin separation along the leading edge of any exposed (bare metal) blade skin aft of the skin-to-spar bond line on the lower surface of each blade. If there is skin separation, the blade is unairworthy.
- Perform a "tap test" to detect any separation or void on skin-to-spar bonded areas on the lower blade skin aft of the skin-to-spar bond line of each blade using a 1965 or later U.S. quarter-dollar coin. If there is any separation or any void, the blade is unairworthy.
- Remove both main rotor blade tip covers. Using a 10x or higher magnification, visually inspect the blade tip area exposed when the blade tip covers are removed. "Tap test" the skin to cap bond joints on both upper and lower surfaces of each blade. If any corrosion, separation, or void is detected, the blade is unairworthy.
- Repaint any exposed area of the blade.
- Before further flight, replace any unairworthy blade with an airworthy blade.
- Thereafter, if the rotor blade is found airworthy by the initial inspection, before each flight, visually check for any exposed (bare metal) skin-to-spar bonded area on the lower surface of each blade within the outboard 24 inches paying particular attention to the last 10 inches before the tip. An owner/operator (pilot) holding at least a private pilot certificate may perform this visual check and must enter compliance into the aircraft maintenance records in accordance with 14 CFR 43.11 and 91.417(a)(2)(V). A pilot may perform this check because it involves only a visual check for any bare metal in the skin-to-spar bonded area and can be performed equally well by a pilot or a mechanic. If a pilot finds any area of skin bare metal in the outboard 24 inches of either blade, before further flight, a qualified mechanic must comply with the requirements of this AD.

The repainting must be done by following the specified portions of the Service Letter described previously.

The short compliance time involved is required because the previously described critical unsafe condition can adversely affect the structural integrity and controllability of the helicopter. Therefore, the actions described are required before each flight and initially within 10 hours TIS, both very short time intervals, and this AD must be issued immediately.

Since a situation exists that requires the immediate adoption of this regulation, it is found that notice and opportunity for prior public comment hereon are impracticable, and that good cause exists for making this amendment effective in less than 30 days.

We estimate that this AD will affect 2290 helicopters. A check before each flight of each blade will take a minimal amount of time. It will take about:

- 3 work hours to inspect 2 blades; and
- 10 work hours to remove and replace a blade for an estimated 10 blades based on reports of 10 affected blades in the past 2 years.
- The average labor rate is \$80 per work hour.
- Required parts will cost about \$16,432 for a Model R22 blade, and about \$23,060 for a Model R44 blade.

Based on these figures, we estimate the total cost impact of the AD on U.S. operators to be \$755,060; \$549,600 to inspect all the blades; plus \$86,160, to remove and replace 5 of the Model R22 helicopter blades plus \$119,300 to remove and replace 5 of the Model R44 helicopter blades.

### **Comments Invited**

This AD is a final rule that involves requirements that affect flight safety and was not preceded by notice and an opportunity for public comment; however, we invite you to submit any written data, views, or arguments regarding this AD. Send your comments to an address listed under ADDRESSES. Include "Docket No. FAA-2007-0378; Directorate Identifier 2007-SW-04-AD" at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of the AD. We will consider all comments received by the closing date and may amend the AD in light of those comments.

We will post all comments we receive, without change, to <http://regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact with FAA personnel concerning this AD. Using the search function of our docket web site, you can find and read the comments to any of our dockets, including the name of the individual who sent the comment. You may review the DOT's complete Privacy Act Statement in the Federal Register published on April 11, 2000 (65 FR 19477-78).

### **Regulatory Findings**

We have determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that the regulation:

1. Is not a "significant regulatory action" under Executive Order 12866;
2. Is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and
3. Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared an economic evaluation of the estimated costs to comply with this AD. See the DMS to examine the economic evaluation.

### **Authority for This Rulemaking**

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

### **Adoption of the Amendment**

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

### **PART 39—AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

### **§ 39.13 [Amended]**

2. Section 39.13 is amended by adding a new airworthiness directive to read as follows:



**2007-26-12 Robinson Helicopter Company:** Amendment 39-15314. Docket No. FAA-2007-0378; Directorate Identifier 2007-SW-04-AD.

### **Applicability**

Model R22, R22 Alpha, R22 Beta, R22 Mariner helicopters, serial numbers 0002 through 4100; R44 helicopters, serial numbers 0001 through 1670; and R44 II helicopters, serial numbers 10001 through 11570, certificated in any category.

### **Compliance**

Required as indicated.

To detect main rotor blade (blade) skin debond and prevent blade failure and subsequent loss of control of the helicopter, do the following:

(a) Within 10 hours time-in-service (TIS), unless accomplished previously:

(1) Using a 10x or higher magnification, visually inspect for skin separation along the leading edge of any exposed (bare metal) blade skin aft of the skin-to-spar bond line on the lower surface of each blade. If there is any skin separation, the blade is unairworthy.

(2) Perform a "tap test" to detect any separation or void on the skin-to-spar bonded areas on the lower blade skin aft of the skin-to-spar bond line of each blade using a 1965 or later U.S. quarter-dollar coin. If there is any separation or any void, the blade is unairworthy.

(3) Remove both blade tip covers. Using a 10x or higher magnification, visually inspect the blade tip area exposed when the blade tip covers were removed. "Tap test" the skin to cap bond joints on both upper and lower surfaces. If corrosion, separation, or any void is detected, the blade is unairworthy.

(4) Repaint any exposed area of the blade according to the Compliance Procedure, paragraphs 3 through 7, of R22 Service Letter SL-56 and R44 Service Letter SL-32, Revision A, dated March 29, 2007.

(b) Before further flight, replace any unairworthy blade with an airworthy blade.

(c) Thereafter, if the rotor blade has been found airworthy by the inspections in paragraph (a), before each flight, visually check for any exposed (bare metal) skin-to-spar bonded area on the lower surface of each blade within the outboard 24 inches paying particular attention to the last 10 inches before the tip. An owner/operator (pilot) holding at least a private pilot certificate may perform this visual check and must enter compliance into the aircraft maintenance records in accordance with 14 CFR 43.11 and 91.417(a)(2)(V). If a pilot finds any area of skin bare metal in the outboard 24 inches of either blade, before further flight, a qualified mechanic must comply with the requirements of paragraph (a) of this AD.

(d) To request a different method of compliance or a different compliance time for this AD, follow the procedures in 14 CFR 39.19. Contact the Manager, Los Angeles Aircraft Certification Office, FAA, ATTN: (For R22) Eric Schrieber, Aviation Safety Engineer, Aircraft Certification

Office, Airframe Branch, 3960 Paramount Blvd., Lakewood, California 90712, telephone (562) 627-5348, fax (562) 627-5210, or (for R44) Fred Guerin, Aviation Safety Engineer, Airframe Branch, 3960 Paramount Blvd., Lakewood, California 90712, telephone (562) 627-5232, fax (562) 627-5210, for information about previously approved alternative methods of compliance.

(e) Repaint the exposed area of a blade by following Robinson R22 Service Letter SL-56 and R44 Service Letter SL-32, Revision A, dated March 29, 2007. The Director of the Federal Register approved this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from Robinson Helicopter Company, 2901 Airport Drive, Torrance, CA 90505, telephone (310) 539-0508, fax (310) 539-5198. Copies may be inspected at the FAA, Office of the Regional Counsel, Southwest Region, 2601 Meacham Blvd., Room 663, Fort Worth, Texas or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: [http://www.archives.gov/federal\\_register/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html).

(f) This amendment becomes effective on January 18, 2008.

Issued in Fort Worth, Texas, on December 17, 2007.

David A. Downey,  
Manager, Rotorcraft Directorate, Aircraft Certification Service.  
[FR Doc. E7-25395 Filed 1-2-08; 8:45 am]